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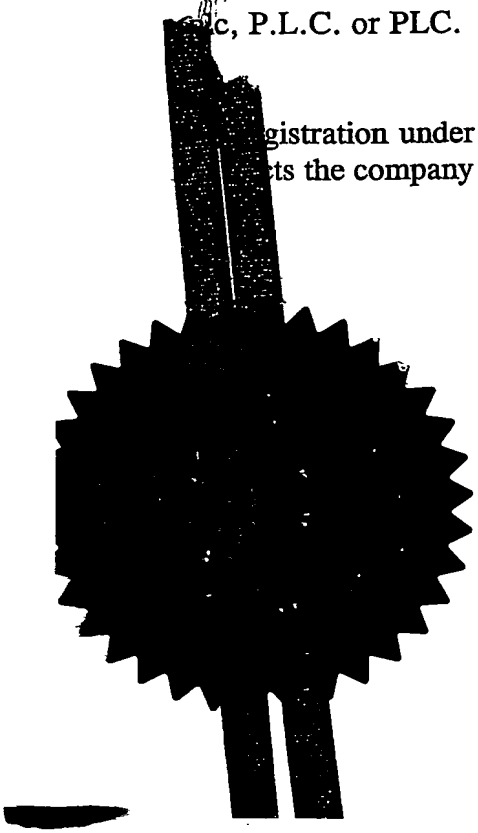

Signed

Dated 18 November 2004

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Your reference **Access Control (UK)**

0325883.7

The **Patent Office**

Request for grant of a Patent

Form 1/77

Patents Act 1977

1 Title of invention

Secure multi-user access to phones

2. Applicant's details

[X] First or only applicant

2a If applying as a corporate body: Corporate Name

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	Agent's ADP Number	C03274 727045 7002

4 Reference Number

Access Control (UK)

5 Claiming an earlier application date

An earlier filing date is claimed:

Yes ☐ No ☒

Number of earlier application or patent number

Filing date

15 (4) (Divisional)	8(3)	12(6)	37(4)
☐	☐	☐	☐

6 Declaration of priority

Country of filing	Priority Application Number	Filing Date

7 Inventorship

The applicant(s) are the sole inventors/joint inventors

Yes [ ] No [X]

8 Checklist

		Continuation sheets	
Claims	0	Description	3 only
Abstract	0	Drawings	0

Priority Documents	~~Yes~~/No
Translations of Priority Documents	~~Yes~~/No
Patents Form 7/77	~~Yes~~/No
Patents Form 9/77	~~Yes~~/No
Patents Form 10/77	~~Yes~~/No

9 Request

We request the grant of a patent on the basis of this application

Signed: Origin Limited Date: 6 November 2003

(Origin Limited)

SECURE MULTI-USER ACCESS TO PHONES

Name:

A method and architecture for providing secure multi-user access to smartphones, or other voice and data-enabled mobile devices.

Summary:

Smartphones are an emerging class of mobile device that combine mobile voice and data features into a phone-style device together with an operating system that enables new software applications to be installed and run. Current popular smartphone operating systems are Symbian, Smartphone 2003 and PalmOS. Operating systems are currently designed as single-user operating systems so are optimized for use by a single user. However, smartphones could be made much more useful by allowing secure access for multiple users. For example, a business user wants secure access for his personal data but may want to allow his IT department access to corporate information and his network operator secure access to network settings and information. This is not possible with smartphone operating systems – each different user will have access to all the information the other users have access to.

The obvious way of solving this problem is to make the phone operating system secure and to support multi-user access, as has been done with operating systems on PCs. This can provide multi-user access to a phone but has the following limitations:

1. this cannot solve the problem of the installed base of users that already have a smartphone
2. this does not provide a best security using a software only solution using the phone operating system

This invention also provides multi-user secure access as changes to the phone OS may do in the future but also solves the two other problems outlined above. It does this by providing software components that can be installed onto the existing smartphones to solve problem 1. To solve problem 2 the software interfaces into the highly-secure SIM card that is built into every smartphone. This provides a much greater level of security

than is possible using just software as a SIM-card hardware token, combined with strong encryption, provides a strong level of authentication.

The invention consists of a means of defining a user identity, a means of passing the user identity securely between mobile devices and software components, and a means of defining the access rights of different users to different resources on the device. Hence, the invention essentially provides a means of multi-identity data caging and a secure means of passing the identity token around software components that may be on the mobile device, or residing elsewhere in the network.

Is this new?

We are not aware of anyone doing anything similar. Symbian have done a lot of work on "Jetstream" for security around Symbian OS, which may mean they have applied for patents in the area. However, we believe all of their work has been around the idea of data caging to allow, or not allow, trusted applications to access specific resources. We do not think they have done anything around using user identity as a basis for this as Symbian OS is designed as a single-user OS, as are PalmOS and SmartPhone 2003.

What problem does this solve?

See summary and variations.

Why is it not obvious to someone who is skilled in software development for smartphones?

Obvious solution would a secure OS-based solution, as this is the way the solution has been implemented for PCs. This solution is novel because it rejects the obvious solution in favour of an integrated component solution that provides a better solution to mobile devices because

- It utilises the SIM card reader that is built into the phones to provide a greater level of security

A similar problem was solved in the early 80's by Novell, when PCs were first networked. They needed to apply the same concepts when creating a network operating system. However, this has never been done for mobile devices because mobile devices have never been considered as multi-user devices, they are always considered to be personal devices.

Variations and Related Ideas

We are currently implementing security without the SIM card reader, as this will take some considerable work as part of our m-Secure initiative to be 'reduced to practice' over the next few years. Hence, we may need to consider the following variations in the first instance.

- Restricting the current patent to something like "A method of allowing multi-user access to computing resources on a single-user Operating System mobile device. This will protect us from mrix competitors but not against Symbian, Microsoft, Palm or others implementing these features in their OS in the future. However, it would provide us with some useful protection ahead of us fully implementing a solution based on using the SIM card on the device.
- Trying to gain a more general patent around solving the problem, which we are not aware of anyone considering today, of "Providing secure multi-user access to different computing resources on mobile devices". The mrix security approach currently does this.